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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,102	06/21/2001	Ryoichi Shinjo	2001_0882A	3927

513 7590 04/23/2003

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EXAMINER	
TRAN, THAO T	
ART UNIT	PAPER NUMBER
1711	8

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary	Application No.	Applicant(s)	
	09/885,102	SHINJO ET AL.	
	Examiner	Art Unit	
	Thao T. Tran	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13,14 and 16-22* is/are rejected.

7)☒ Claim(s) *15 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. This is in response to the Amendment filed on April 11, 2003. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

2. The newly added claims 13-23 are currently pending in this application. Claims 1-12 have been canceled.

Drawings

3. In view of the prior Office Action of December 11, 2002, the objection to the drawing has been withdrawn due to the Amendments thereto.

Claim Rejections - 35 USC § 102

4. Claims 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Shinjo et al. (US Pat. 5,538,695).

Shinjo teaches an ozonizer 2 and an electric discharge cell 4 for the ozonizer, the electric discharge cell comprising a pair of electrodes 5 & 6 spaced apart from each other; wherein the electrodes are connected to a power source 10 and electrode 6 has a surface including a plurality of trench grooves (serration-shaped projections); a dielectric plate 7 disposed between the electrodes; and a gas flow path or discharge space 8 between the dielectric and electrode 6 (see Figs. 1-2; col. 3, ln. 8-17; col. 5, ln. 37-56). Shinjo further teaches the trench grooves being substantially parallel with each other (see Fig. 2).

Although Shinjo is silent with respect to an inlet port, an inlet port would be inherently included in the apparatus, in order to supply gas into the gas flow space.

Shinjo further teaches electrode 5 having a flat surface with the dielectric on the surface (see Fig. 2).

5. Claims 13-14, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamiya et al. (US Pat. 5,549,874).

Kamiya teaches an ozone generator, comprising a pair of electrodes 3 & 4 connected to a power supply 7; a dielectric 2 between the two electrodes; wherein electrode 4 has a plurality of parallel, trench grooves on the surface; and a discharge space or gas flow passage 1 between electrode 4 and the dielectric; electrode 3 having a flat surface and covered by the dielectric 2 (see Fig. 4; col. 1, ln. 41-54).

In regards to claim 18, Kamiya further teaches the dielectric comprising sapphire (see abstract).

6. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Duarte (US pat. 5,554,344).

Duarte teaches an ozone generator, comprising a pair of electrodes 4 & 5, spaced apart and connected to an electric power source, with a dielectric 3 disposed between the electrodes; a gas path 8 between the dielectric and one or both electrodes; wherein the electrode surfaces have a plurality of grooves that are substantially parallel to each other (see Figs. 1-2; col. 3, ln. 37 to col. 4, ln. 10).

7. Claims 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Document (JP-2540627).

JP '627 teaches an ozonizer, comprising a pair of electrodes 2 & 3, spaced apart from each other and connected to an electric power source by electrical leads 10 & 11, with a dielectric 1 between the electrodes; a gas path between the dielectric 1 and electrode 2; wherein electrode 2 has a plurality of parallel trench grooves on its surface, and electrode 3 has a flat surface and is covered by the dielectric (see Figs. 1-2).

Claim Rejections - 35 USC § 103

8. Claims 17, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinjo as applied to claim 13 above.

Shinjo is as set forth in claim 13 above and incorporated herein.

In regards to claim 17, Shinjo does not teach the ozonizer comprising a plurality of the electric dischargers. However, it has been held within the skill in the art that duplication of parts has no patentable significance unless a new and unexpected result is produced. See ***MPEP 2144, Section VIB***.

In regards to claim 19, Shinjo does not teach a specific shape of the electrode surfaces. However, it has been held within the skill in the art that particular configurations of the electrode surfaces would be a matter of choice, since it appears that the discharger would function equally well whether the electrode surfaces are circular or of some other shape, absent persuasive evidence. Furthermore, Applicants do not disclose that the use of circular electrode surfaces would provide more advantages over other configurations of the electrode surfaces. See ***MPEP 2144.04, Section IVB***.

In regards to claim 21, it has been held within the skill in the art that apparatus claims must be structurally distinguishable from the prior art and that the manner of operating the device does not differentiate apparatus claims from the prior art. See ***MPEP 2114***.

9. Claims 17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya as applied to claim 13 above.

Kamiya is as set forth in claim 13 above and incorporated herein.

In regards to claim 17, Kamiya does not teach the ozonizer comprising a plurality of the electric dischargers. However, it has been held within the skill in the art that duplication of parts has no patentable significance unless a new and unexpected result is produced. See ***MPEP 2144, Section VIB***.

In regards to claim 19, Kamiya does not teach the electrode surfaces being circular in form. However, it has been held within the skill in the art that particular configurations of the electrode surfaces would be a matter of choice, since it appears that the discharger would function equally well whether the electrode surfaces are circular or of some other shape, absent persuasive evidence. Furthermore, Applicants do not disclose that the use of circular electrode surfaces would provide more advantages over other configurations of the electrode surfaces. See ***MPEP 2144.04, Section IVB***.

In regards to claim 20, Kamiya teaches the dielectric comprising sapphire (see abstract).

In regards to claim 21, it has been held within the skill in the art that apparatus claims must be structurally distinguishable from the prior art and that the manner of operating the device does not differentiate apparatus claims from the prior art. See ***MPEP 2114***.

10. Claims 16 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinjo and JP '627 as applied to claims 13 and 19 above, and further in view of Ishioka et al. (US Pat. 6,027,700).

Shinjo and JP '627 are as set forth in claims 13 and 19 above and incorporated herein.

Shinjo teaches both electrodes being supported by a retaining frame 11 and spacers 12, and that the cooling passage traverses both electrodes (see Fig. 2). However, Shinjo does not teach the cooling passage flow through a holding plate supporting the electrodes.

JP '627 teaches both electrodes being supported by presser frame 9 and packing 8. The flat electrode 3 is further directly supported by a holding plate (water cooled case 6), wherein cooling water traverses the holding plate (see Fig. 1). However, JP '627 does not teach the cooling passage traverses through one of the other electrode.

Ishioka teaches an ozonizer, comprising ground and high voltage electrodes 102 & 104 spaced apart from each other with a dielectric in between; the electrodes being supported by the housing 101 and capillaries 111; wherein cooling water traverses both the high voltage electrode and the support housing (see Figs. 4A-B).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the cooling passage of Shinjo or JP '627, as taught by Ishioka. It has been known within the skill in the art that cooling both of the electrodes, and especially the high voltage electrode, would prolong their lifetime and also would enhance the production of ozone, since it has been known that ozone decomposes faster at higher temperatures.

Allowable Subject Matter

11. Claims 15 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

Claim 15 is allowable because no prior art has been found to teach or fairly suggest an ozone generator or an electric discharge cell for an ozone generator, comprising a radial passage extending radially from the central space formed at a central portion of an electrode surface; in combination with all of the other limitations of claim 13.

Claim 23 is allowable because no prior art has been found to teach or fairly suggest an ozone generator, comprising the cooling water flow passage of the holding plate and the cooling water flow passage of the other electrode being communicate with each other; wherein the cooling water outlet of the holding plate is communicated with the cooling water outlet of the other electrode; in combination with all of the other limitations in claims 19 and 22.

Response to Arguments

13. Applicant's arguments have been considered, but have not been found persuasive.

In response to Applicants' remark that none of the references of Shinjo, Kamiya, and Duarte teaches the ozone generators with a gas flow passage that is arranged so that the gas flow between the electrodes in a direction transverse to a longitudinal direction of the parallel grooves. However, it has been within the skill in the art that the manner of operation or

functional limitations would have insignificant patentable weight when an apparatus claim is being considered. See *MPEP 2114*.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao T. Tran whose telephone number is 703-306-5698. The examiner can normally be reached on Monday-Friday, from 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703-308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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April 21, 2003

James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700